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TOXEMIC DISEASES AND THEIR TREATMENT.

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I deferentially submit to my professional brethren, the following affirmative propositions:

In doing so I beg to express my entire confidence in their truth; and the hope, better defined perhaps as an assured belief, that, when practically recognized, we shall occupy a more advantageous stand-point—shall witness more uniform and satisfactory results from the treatment of that class of diseases to which they refer—shall enjoy a more general and abundant success in our efforts to relieve human suffering.

1st. Except in the suppressed condition of certain functions, there exists no resemblance between the symptoms of cholera and those of yellow fever; yet the latter is not less distinctly a form of toxemia, or blood poisoning, than is the former.

2d. If these diseases, so dissimilar in many leading features are to be so considered, we are forced to regard in the same light all those forms of fever which owe their existence to malarial or miasmatic causes; the creative influences having, in each instance, a like form of existence, are alike inappreciable by the senses or by any known method of chemical analysis, enter the system through the same medium, and, presumably at least, operate in the same manner—by contaminating the blood. I have so regarded and, when practicable, have so treated the various forms of fever so produced, since the cholera period of 1873. The results have been eminently satisfactory.

3d. The effective agent employed in both the preventive and the remedial treatment of cholera was chlorine; in the form of the tr. sesq. chlor. ferri. to subserve the former, and a hyperchlorinated form of the same agent the latter purpose. Each, the prophylactic and the remedy, appeared perfect in its sphere.

Hydrochloric acid alone, in a sufficiency of water, or the formula employed in cholera, omitting in some instances the tr. opii, has been employed, as the different features of individual cases have suggested, in the treatment of the fevers mentioned, since the period referred to.

4th. That certain organs do ^{eliminate} ~~alienate~~ from the system poisons, which, if retained, would not only prove hurtful to health, but often destructive of life, is admitted as a physiological and pathological truth. But when it is maintained that it is only through such media that relief from such influences can be obtained, support is given to a dogma at once untenable, absurd and of most mischievous tendency; inasmuch as the physician, operating under implicit belief in the generally asserted and accepted truth of the proposition, wastes the precious moments of his patient's life—the golden season of opportunity—in the effort, generally fruitless, to arouse such organs to action. But their functions are suppressed by reason of the poisoned condition of the blood, and we cannot, very reasonably, hope for their restoration until the offending cause is removed. Special excitants, such as calomel, dover's powder, digitalis, &c., &c., addressed to the liver, skin and kidneys, may suffice in cases of merely impaired function, but will generally be found unavailing and unreliable in complete suppression, such as is found in well developed cases of both cholera and yellow fever. Hence the pernicious effect of the dogma; and hence, too, the unsatisfactory results which have attended the various plans adopted in the treatment of these diseases, respectively. There is, I conceive, no error of the present period which more gravely affects the public welfare, or which so seriously impairs the success of the physician.

5th. The doctrine of "personal disinfection," as it has been termed, asserts that if poisons of the character mentioned may enter the circulation, so also may the ^{meant} ~~agent~~ designed for their correction; that these toxical agents ^{are} ~~is~~, respectively, chemical entities of some sort, and, as such, are amenable to chemical laws and influences; that these poisons may be neutralized and destroyed prior to and independently of the action of eliminative organs. The theory is in strict harmony with the beauty, wis-

dom and general perfection of the Creator's works; with the facts long since ascertained by Fodera, Mayer, Mitchell and others; with the well-known fact that medicines administered "per orem" or "per anum," by inunction or inhalation, are often found present in the secretions and excretions of the body. It is abundantly sustained by the phenomena observed in cholera, as well as in the various forms of fever which have been treated on the disinfectant plan. The different salts found present in the blood give, moreover, additional indication of the truth of the theory.

6th. Poisons of the character mentioned, whether material or gaseous, are the products of animal or vegetable decomposition.

7th. The premises conceded, it follows that we should select as remedies, in the treatment of diseases produced by causes of this character, agents of general and strongly pronounced disinfectant and antiseptic qualities.*

8th. Chlorine is destructive of all animal and vegetable odors and exhalations; and by reason of this property, as well as the multiplied forms in which it may be used, it is perhaps better adapted to the purpose than is any other agent we possess. But, as this element, in its gaseous state, is not available for the disinfection of the blood, we should select that combination in which it most largely abounds, and which can most readily and safely be employed. Hydrochloric acid (H Cl) is best adapted to the purpose, because of the abundance of the element in comparatively small compass, the ease with which it may be administered; and is preferable to the salts of chlorine for the reason that, after its appropriation to the wants of the system, there is no residual base, as in the latter, which might hypothetically serve to increase the alkalinity of the stomach observed to exist during the initial stage

* Dunglison (Med. Dictionary), with questionable propriety, I think, uses these terms synonymously. For instance: The nitrate of potassa (KO. NO_5) is an agent of strongly marked antiseptic virtues, as shown by its effects when employed for the preservation of meats. When used medicinally it increases the flow of urine, and is thus "pro tanto" depurative. But it is certainly possessed of no disinfectant quality, whatever, in the proper sense of the term. The chlorate of potassa (KO. ClO_5), on the other hand, is both antiseptic and disinfectant. The latter quality is perhaps less distinctly observable than in compounds abounding more largely in chlorine; but is nevertheless a manifest and an admitted property.

of both cholera and yellow fever. The effects of the tr. sesq. chlor. ferri. as a prophylactic during cholera were perfect. Of the many hundreds exposed, in this and in other infected localities, embracing physicians, nurses, members of the same household, servants, grave-diggers, and others brought in constant contact with the disease, no one was attacked who had conformed to the suggestion, made through the public press, touching the use of the tincture as a prophylactic. The enfeebling effects of the cholera poison are generally experienced, to a considerable degree, prior to the stage of actual development of the disease. This agent happily subserved the purpose of both a tonic and a disinfectant. The demand for agencies possessing the same qualities existed only in more marked and urgent degree during the attack; and hence a hyperchlorinated form of the same agent was employed as the remedy.* This proved not less efficient and satisfactory than did the former, whilst the results obtained were altogether too prompt, uniform, gentle and thorough to be justly, or even plausibly referred to other agency or influence than the disinfectant quality and action of the means employed. A series of experiments made by me, and elsewhere more particularly mentioned ("Cholera of 1873"), touching the qualities of hydrochloric acid, appeared fully to sustain the conclusion that the office of this agent, as it exists in the stomach, is not, as has heretofore been maintained by physiologists, to assist in the process of digestion by acting as a solvent of our food, but, by virtue of its antiseptic power, to prevent its decomposition before it is appropriated by the assimilative organs; and, as previously demonstrated, by its use as a prophylactic during cholera, to neutralize and destroy poisons which are continually entering the circulation through the medium of the lungs. The fact is fully attested by such experiments and such use of this agent, in the form designated, that ozone and chlorine bear an interest-

*The formula employed was as follows:

R.	Tr. sesq. chlor. ferri	3vi.	
	Hydrochloric acid	3i.	
	Tr. opii	3i.	M.

S. 15 to 30 drops every half hour to hour, etc.

ing and important relation to each other—the former operating to repress and correct poisons in the atmosphere and the latter to correct and repress poisons in the stomach and blood. Thus related in property and office, it follows that the absence of either necessitates, for the purposes of health, the constant and full presence of the other. That the *mur. tr. ferri*. would prove as distinctly and thoroughly efficient as a prophylactic in yellow fever as it did in cholera, I have no doubt whatever; but whether there exists a demand, or even a justification for the use of iron, in this or other form, as a remedy, I do not know, and therefore defer to the judgment of those who have enjoyed opportunities for practical observation.* But that there does exist an absolute and imperious demand for hydrochloric acid appears evident, not only in view of the wonderful disinfectant power of chlorine, but of facts presently to be related.

9th. There arises on occasion of the epidemic prevalence of either cholera or yellow fever a co-operative influence, a foe to human health of formidable strength and proportions—ammonia. The absence, or the diminished and insufficient presence of ozone does not imply, at such times, more distinctly or surely the existence of the prevailing poison than it does that of this compound. Were ozone present, in sufficiency, in the atmosphere, neither could exist; but its absence is the signal for the prevalence of either or both. This is especially true of ammonia in cities, towns and crowded communities. Its chief and abundant sources of supply are found in animal putrescence, and also, in more limited amount, in vegetable decomposition. Fresh meats, at such times, are observed to decompose earlier and more rapidly than during seasons of health.

The same is true of every sort of animal filth. From the market house, the meat-house and kitchen; from sewers, sinks, privies, stables, &c., &c., arises a constant volume of this most hurtful agent. Between no two substances in the whole chemical world does there exist a more intense or powerful affinity

*"I was gratified to learn from Dr. Sternberg, of the U. S. Army, since this article was written, that he had been informed during his recent official visit to Havana, by the surgeon in charge of the hospital in that city, that better success had attended the treatment of yellow fever in that institution during the past year than ever before;—a fact which he attributed to the liberal use of the *mur. tinct. of iron*."

than that which governs the relations of chlorine and ammonia to each other. A familiar method of illustrating this fact consists in placing two unstopped bottles, one containing hydrochloric acid and the other ammonia, at an interval of several feet apart. The fumes are observed to arise and meet in the form of a dense, white vapor. Were an unstopped bottle of the acid, alone, placed on the table in a city when either cholera or yellow fever is prevailing, we should witness the same phenomena—the ammonia being abundantly supplied from the sources mentioned. Being of highly diffusible nature, it is everywhere present. It pervades the mansions of the wealthy and the cottages of the poor, is in the air respired and in the water drunk, is both breathed and swallowed, until, by the constant and irrepressible play of affinities alluded to, the system is robbed of the presence and protection of the hydrochloric acid, naturally existing in the stomach, and the party exposed falls an easy prey to the prevailing poison. Watson (Practice of Physic, 4th Am. Ed., Art. Yellow Fever) quotes Blair as saying in regard to the disease, as it prevailed in British Guiana, that the patient's breath and the "black vomit" both exhaled the smell of ammonia—that in the latter "its presence is universal"—"may always be found when looked for," and "may be considered one of the tests" of that discharge. These facts, I conceive, are of importance; indicating, as they do, the presence and effect of an agent not generally computed among causative influences, and revealing clearly the plea of treatment necessary to be pursued.

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10. Unless contra-indicated by evidences of organic lesion, hydrochloric acid should be constantly, conspicuously and predominantly present in all yellow fever prescriptions; nor should the administration of this agent be governed by the doses ordinarily prescribed or required, inasmuch as the demand is both urgent and inordinate.*

Both the acid and its compound, the muriated tincture of iron, have been occasionally employed as remedies; but neither, so far as I am aware, has ever been suggested as a prophylactic. The author just quoted from speaks of the tincture as "coming to us with such strong testimony in its favor as a

remedy adapted to even the earlier stages of yellow fever, that it demands further trial. Yet I have seen no statement of the method in which either has been employed—no explanation of the circumstances which require their use—no detail of results—no rationale of treatment. The “Qui fit” has not been answered; and without a correct appreciation of the character and force of influences which render the use of the agencies designated not only appropriate but necessary, there appears good reason to apprehend that they have been employed irregularly and in doses totally insufficient.

If I am correct in the views expressed touching the practicability of disinfecting the blood, it will readily occur to the intelligent reader that, in the properly regulated use of the muriated tincture of iron, with or without a super-addition of hydrochloric acid as may be found best, will be found a plan of protection from both cholera and yellow fever far more efficient and reliable than that afforded by quarantine and one, too, which will not in any measure disturb the peace of society nor the interests of commerce. I beg that I may not be esteemed sanguine, without reason, when I express a confident hope that this fact will be established.

*With the view not of encouraging the needless and indiscriminate use of the means indicated, but of showing how urgent is the demand for them on such occasions, I beg leave to reproduce from my paper on cholera the following:

“The dose suggested may, I am satisfied, in cases requiring it, be safely doubled, tripled, or even quadrupled. A negro woman, suffering from an attack of cholera, took a tablespoonful of the mixture undiluted. No ill effect nor even inconvenience was sustained, beyond copious and loud eructations of gas from the stomach. A gentleman gave to his child, nine years old, a tea-spoonful. The cholera was, in each case, promptly arrested, a second dose not having been required by either. The security from ill effects, in such cases, is doubtless due to the alkalinity referred to.”



